

Midterm Review Day 1

Date _____ Period _____

1) Simplify the expression below.

$$(7y^2 - 3y) - (4y^2 + 2y - 2)$$

- A) $3y^2 - 5y + 2$
- B) $3y^2 - y + 2$
- C) $3y^2 + 5y + 2$
- D) $3y^2 - y - 2$

2) Simplify the expression below.

$$(2x^2 - 5x + 6) + (5x^2 - 3x + 4)$$

- A) $7x^2 - 2x + 10$
- B) $7x^2 - 8x + 10$
- C) $7x^2 - 2x + 2$
- D) $7x^2 - 8x + 2$

3) Simplify the expression below.

$$3xy(5x^2 + 2xy + 3y^2)$$

- A) $15x^3y + 2xy + 3y^3$
- B) $15x^2 + 5xy + 3y^2$
- C) $15x^3y + 6x^2y^2 + 9xy^3$
- D) $15x^2y + 6x^2y^2 + 9xy^2$

4) Find the product: $(4x - 1)^2$

5) Simplify the expression below.

$$(m + 3)(m^2 - 2m + 2)$$

- A) $m^2 - 3m + 6$
- B) $m^3 + m^2 - 4m + 6$
- C) $m^3 + m^2 - 6m + 6$
- D) $m^3 - 2m^2 + 6$

6) Factor:

$$50a^3b - 8ab$$

7) Factor:
 $7a^2 - 7b^2$

8) Factor:
 $k^2 + 20k + 64$

9) Factor:
 $8m^2 - 6m - 5$

10) Factor:
 $x^3 + 9x^2 - 52x$

11) Factor:
 $6w^2 - 3w - 18$

12) Is $x - 4$ a factor of $x^2 - 11x + 28$? Explain why or why not.

13) What are the solutions of
 $(x + 2)(5x - 6) = 0$?

14) Use factoring to solve $x^2 + x = 6$.
A) 6 and -1 B) -3 and 2
C) -2 and 3 D) -6 and 1

15) Solve $5x^2 - x = 7$ using the quadratic formula.

16) Solve $x^2 + \frac{7}{6}x - \frac{1}{2} = 0$ using the quadratic formula.
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

17) Solve using square roots:

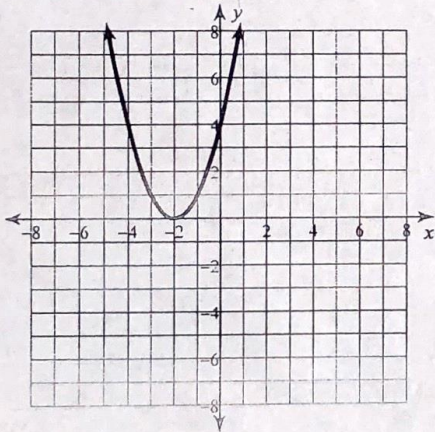
$$\frac{2}{3}x^2 + 15 = 23$$

- A) no solution B) $\pm 2\sqrt{2}$
C) $\pm\sqrt{38}$ D) $\pm 2\sqrt{3}$
E) ± 12

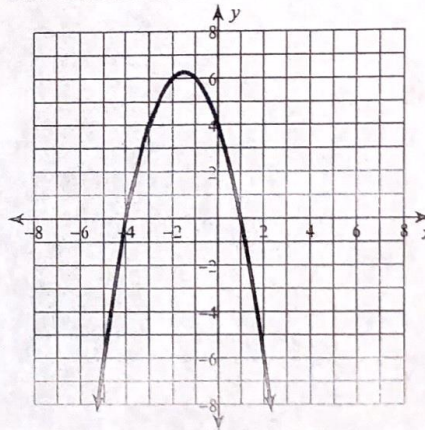
18) Solve using square roots:

$$(x + 2)^2 = 16$$

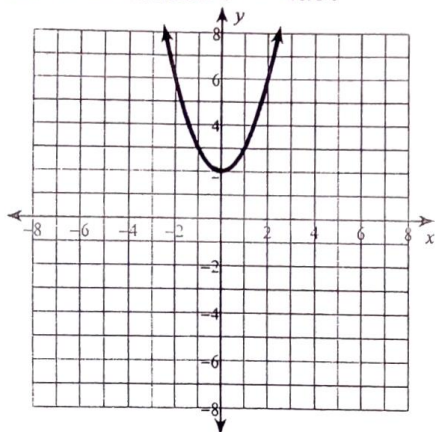
19) Using the graph, what do you know about the discriminant $b^2 - 4ac$?



20) Using the graph, what do you know about the discriminant $b^2 - 4ac$?



- 21) Using the graph, what do you know about the discriminant $b^2 - 4ac$?



- 22) Given the equation, find the discriminant and identify how many solutions.

$$x^2 - 3x + 12 = 0$$

- a) 2 real solutions
- b) 1 real solution
- c) 0 real solutions

- 23) Given the equation, find the discriminant and identify how many solutions.

$$-x^2 + x + 8 = 0$$

- a) 2 real solutions
- b) 1 real solution
- c) 0 real solutions

- 24) Given the equation, find the discriminant and identify how many solutions.

$$x^2 + 22x + 121 = 0$$

- a) 2 real solutions
- b) 1 real solution
- c) 0 real solutions